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Preventing & Treating Poison oak Poison ivy

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Preventing & Treating **poison oak** **poison ivy**



August 1981

This publication is adapted from *Poison Oak and Poison Ivy Dermatitis - Prevention and Treatment in Forest Service Work* by W.L. Epstein, M.D., and V.S. Byers, Ph.D., USDA For. Serv. Equip. Dev. Ctr. Pub. 8167 2803, For. Serv. Equip. Dev. Ctr., Missoula, MT 59801.

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The Plants

Poison oak or poison ivy afflicts outdoor workers in every State except Nevada, Alaska, and Hawaii. The plants are the greatest cause of workmen's compensation in the United States, and one of the leading causes of Forest Service field injuries.

Poison oak and poison ivy plants can look alike, but their growth forms vary greatly. Poison ivy has a greater variety of leaf shapes than poison oak, although both have a characteristic triple leaf pattern. The plants can be shrubs growing 3 to 10 feet tall or long, woody, climbing vines. Poison ivy is often a plant growing less than a foot high. Poison oak is the name generally used in California, Oregon, and Washington for the shrub form.

Contact with either plant produces identical effects: itching, swelling, and painful blisters. A severe case can be disabling: itching and weeping blisters make sleep impossible; swelling of the face and eyes makes it hard to see; and when legs and groin are involved, it becomes difficult to walk.

No medicine can completely protect against poison oak/ivy rash. But by understanding the rash and how it is spread, effective measures can be taken to control it. And a new medication—steroid gels—can minimize discomfort and speed recovery.

How They Poison

The plants' sap contains an oil that causes an allergic reaction on the skin. Contacting the oil sets off a skin eruption that may vary from simple itching inflammation to water blisters.

The plants usually must be damaged—cut leaves, broken stems—to expose the sap. Leaves, stems, and roots contain the oil. The berries and pollen do not.

When the plants are burned, the toxic oil coats the soot, and this airborne material is dangerous. Inhaling this smoke can cause fever, malaise, tracheitis, bronchitis, and a severe rash. Acute cases require hospitalization.

The rash can also be contracted by touching objects that have contacted the oil—clothes, tools, equipment, fingernails, even the skin itself. These carriers are called fomites. Smoke is a fomite. Animal fur is a fomite, too.

The oil loses its toxicity very slowly. Shoes or boots worn in a patch of poison oak or ivy and coated with the oil can remain contaminated for months—possibly years—and cause the rash on contact.

Next to direct contact with the plants, fomites are the major source of the rash.

When the oil contacts the skin it penetrates and binds to skin cells. The body's immune system recognizes these cells as "foreign" and begins to destroy them, which results in the swelling, redness, and blisters. Basically, the reaction is similar to the way the body attacks and destroys cancer cells.

Excess oil that has not bound itself to the skin cells can be spread to other parts of the body. This is often seen as a rash appearing one place on the body the second day and another place on the third day.

Who Is Sensitive to Poison Oak/Ivy

About half the people who contact the plant will develop a rash. Some people require more of the oil than others to produce a reaction.

Sensitivity can change with time. In general, persons repeatedly exposed to poison oak or poison ivy become more sensitive. They react to lower concentrations of the oil. Individuals who don't encounter these plants

for several years become less sensitive. Also, people become less sensitive as they get older.

But these general rules don't always hold true. Persons who have always waded through patches of poison oak without effect can suddenly develop a severe rash after such contact. Yet, occasionally, after a serious bout of poison oak or ivy, a person becomes less sensitive.

Prevention

Education

The best way to prevent the rash is to recognize the plants and avoid them. But their appearance varies from region to region and season to season. Much of the spring and summer the leaves are a waxy green. They may be yellow, red, or a deep maroon, as well. In autumn the foliage is a vivid red.

Seeing the plants in their natural surroundings is the quickest way to become familiar with them. Photos or drawings are a help. Workers who don't know how to recognize the plants should attend a safety session on poisonous plant identification.

Protective Clothing

Normal field clothing protects legs, feet, arms, and hands. But wrists, face, and eyes are often unprotected, so they are problem areas.

Wielding a pulaski or picking up brush exposes the wrists. Sleeves should be kept buttoned over gloves so wrists and arms are exposed as little as possible.

Protecting the face is harder. Oil that collects on the shirt sleeves can be spread to the face when wiping sweat from forehead and eyes. Wearing a terry cloth sweatband under the hardhat absorbs sweat and keeps it out of the eyes. Or a bandana can be tied around the forehead to collect sweat. It can be rinsed or

wrung out periodically. Gloves should be kept away from the face.

Any type of protective clothing is better than none. But protective clothing has its drawbacks. If the oil gets on skin and in sweat, the clothing itself can spread the oil both directly and by promoting sweating. Clothing can also increase penetration of the oil into the skin. Oil that contacts the inside of the sleeves can be spread up the arms both by direct contact and by mixing with sweat.

Have clothing laundered as often as practical when working in areas where poison oak or poison ivy is common.

Washing

The oily sap is marginally soluble in water—a little water spreads the oil, but a lot washes it off.

One of the best ways to prevent the rash is to wash the skin thoroughly with cold water. (Warm water allows the oil to penetrate more.) If this can be done in 1 to 3 minutes after exposure (exact time depends on individual sensitivity), the rash can be prevented. Even if it is too late to prevent the rash, excess oil should be washed off. Otherwise, it remains on the skin where it can spread. Liberal use of cold water on the affected areas prevents this. Neither the red swollen area nor the blister fluid transmits the rash, only the oil can do so.

Using soap to wash the oil off the skin is controversial. Although better than water alone, soap removes the skin lipids (oils) that protect against absorbing the poisonous plant oil. These lipids take 3 to 6 hours to regenerate. If skin is washed with soap and water, then reexposed within this time, either from new contact or from poisonous oil spread from other parts of the body, a rash is more likely. So it's best not to use soap. Use lots of cold water instead.

Because the wrists, forearms, and face are areas of high contact, along with the hands, they should be washed thoroughly with cold water.

Besides washing skin carefully, clothes and equipment need to be washed. Remember, fomites are a major source of the rash.

Fomites should be washed with soap and water. Sleeves and gloves appear to be the primary fomites. Gloves should be rinsed in soapy water periodically to remove most of the oil.

Boots and tools are other important fomites. They can carry high concentrations of the oil and spread the plant poison. Wash them thoroughly.

Treatment Medication

Topical Steroids

Within the past several years, potent steroid gels have been developed that effectively prevent the rash from developing or from getting worse once the rash has appeared. (Steroid creams, lotions, and ointments also are available, but gels are the most effective in quickly stopping the rash.) Not all doctors may be familiar with steroid gels. Workers exposed to poison oak or ivy should ask about topical steroid treatment.

These gels, available by prescription in 10- to 15-gram tubes, are applied to the skin at the first sign of itching, redness, or swelling. They should be applied only to those areas exposed, and in moderation. The gel is rubbed into the infected area several times each day. Improvement can be seen in about 6 hours. The gel produces no adverse side effects as long as it remains local on the skin. Some of the gel is absorbed into the systemic circulation in amounts directly proportional to the area covered.

Systemic Steroids

These steroids are administered by injections and by pills. This more potent form of the medication is indicated when:

- The rash involves more than one-quarter of the body.

- The face is red and swollen because of exposure in smoke.
- A very sensitive person contacts the oil and face or genitals begin to itch and swell.

Itching is usually the earliest symptom, followed by swelling and redness. Again, the earlier the steroids are administered the better. If a sensitive individual has been in a poison oak or ivy area and begins to itch over large areas of the body, systemic steroid therapy is indicated.

Systemic steroids can be administered by a physician either as tablets or injections:

Tablets—20 delivered in divided doses over a 24-hour period, 5 tablets 4 times a day. Either prednisone (5 mg/tablet) or Decadron (dexamethasone) (0.75 mg/tablet) can be used. Prednisone is cheaper, but its effectiveness depends on the supplier. Decadron is a Merck Sharp & Dohme product, consistently effective, but more expensive.

Injections—If the physician elects injections, two should be given: (1) Celestone (betamethasone sodium phosphate and betamethasone acetate), 1 ml at 6 mg/ml; and (2) Kenalog-40 (triamcinolone acetonide), 1 ½ ml at 40 mg/ml.

Calamine Lotion

Calamine lotion is probably as good at relieving the itching as anything, apart from steroids. It's especially effective when applied to areas where blisters have formed, because it relieves the itching and absorbs the blister fluid.

Other Medicines

Theoretically, antihistamines taken orally, such as Benadryl or Chlor-Trimeton, should help in the treatment, either of the rash itself or of the itching, but they haven't proven effective. Any positive benefit is probably because they make the patient sleepy.

Prevention Summary

Know how to recognize the poison oak and poison ivy plants and how to avoid them. When the plants can't be avoided:

Wear protective clothing. Keep sleeves and cuffs rolled down and buttoned. Keep gloves on and shirt sleeves and gloves away from the face. Consider wearing a headband or bandana to absorb sweat.

Know which objects are most likely to carry the oil. Shirt sleeves, trouser cuffs, boots, gloves, and tool handles and surfaces are carriers. Wash these items thoroughly with soap and water. After each fire in a poison oak or ivy area, launder clothes and sleeping bags.

Wash skin immediately with liberal amounts of cold water if contact is suspected. Avoid using soap. Washing the skin within 1 to 3 minutes after contact prevents the rash from developing. A lot of water washes off the oil, and a little water spreads it, so the best prevention is immediate washing with ample cold running water. (Sources include faucets, canteens, mountain streams, and water tanks.)

Treatment Summary

Wash affected skin as soon as possible with cold running water. Any poisonous oil not absorbed into the skin can be spread to other parts of the body. Washing off this excess oil prevents the rash from spreading.

Obtain steroids if itching begins. Both topical and systemic steroids depend on early use. It is critically important to request steroids at the earliest symptoms, usually itching. Steroid gels applied to the skin will prevent the rash if used within the first 24 to 48 hours after contact. Because they work locally, they can be given in small doses without harmful side effects.

Persons particularly sensitive to the poisonous oil should obtain steroids (tablets or gels) from a physician before going into the field.

Criteria for Topical Steroids: Less than one-quarter of the body affected, less than one-half of the face. Treatment should begin at first symptom; it should not extend **beyond 72 hours, or after the blisters develop.** The gel should be used sparingly and rubbed into the skin thoroughly. No visible gel should remain on the skin. Physicians should demonstrate use—it is difficult to describe.

Criteria for Systemic Steroids: More than one-quarter of the body affected; one-half or more of the face affected; genitals swollen; encounter of oil in smoke. Such a widespread poison oak/ivy rash is a medical emergency. Victims should see a physician immediately or go to a hospital emergency room for treatment.

Systemic steroids are given either as tablets taken over 24 hours or as two injections. Both approaches produce marked improvement in hours.

If the reaction has progressed only to the itchy, red, swollen stage, the symptoms quickly clear. If it has gotten to the blister stage, the redness and swelling resolve, but the blisters clear in the usual time. However, new blisters don't form.

Apply calamine lotion for symptomatic relief. Calamine lotion can be used along with steroid gels to relieve itching and improve the weeping blisters. It should not include additives such as Benadryl (anti-histamine) or zirconium. Use calamine lotion *instead* of steroid gels when the area of contact is small, or when the rash is more than 72 hours old; steroid gels are not useful after that time.

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